

THE
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CONTENTS

Scientific Proceedings of the Section of Ophthalmology, A. M. A.
Continued:

Discussion of Dr. Knapp's Paper on Cataract Continued:—Dr. L. W. Fox.	45
Immature Cataract and the best Method of Hastening Maturity, by Joseph A. White, M.D.	48
Discussed by:—Dr. J. J. Chisolm,	49
Dr. Minney,	49
Dr. Hotz,	49
Dr. Tilley,	50
Dr. Prince,	50
Dr. Baker,	50
Dr. White.	51
Infantile Cataract, by A. R. Baker, M. D.	52
Injury of the Lens, with Cases, by B. L. Millikin, M.D.	53
Manifest and Latent Hyperopia, by Edward Jackson, M. D.	56
Discussed by:—Dr. Würdemann,	56
Drs. Hotz, Randall and Lidston.	57
What may be Considered Normal Corneal Astigmatism, by Dr. Würdemann,	58
Discussed by:—Dr. Noyes,	60
Dr. Risley,	61
Drs. Smith and Hubble,	62
Drs. Savage and Würdemann.	63
Section of the Optico-Ciliary Nerves, by J. J. Chisolm, M.D.	64
Conservative Management of Lachrymal Obstruction, by S. D. Risley, M.D.	66
Rhinitis Caused by Exophoria, by Leartus Connor, M.D.	68

EDITORIAL.

Dr. Roosa's Views on "Astigmatism; its Relative Importance in Asthenopia Due to Errors of Refraction" Reviewed.	69
Dr. Landolt on Cataract.	75
Other News Items.	75 & 76

Department of Otology, Laryngology and Rhinology.

Eucalyptol in Diphtheria, by Marion Thrasher, M.D.	77
Catarrhal Sore Throat in the Lake Region, by J. M. G. Carter, M.D.	80
Fatal Case of Mastoiditis of the Bezold Variety, by H. Knapp, M.D.	81
Opacities of the Membrana Tympani, by Francis Dowling, M.D.	83
Comparison between Certain Methods of Treatment in Acute Tonsillitis and Pharyngitis, by James E. Newcomb, M.D.	84

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No. 2.

Continuation of the
SCIENTIFIC PROCEEDINGS OF THE
SECTION OF OPHTHALMOLOGY OF THE A. M. A.,
At Detroit, Mich., June, 1892.

DISCUSSION OF DR. KNAPP'S PAPER* CONTINUED.

Dr. L. WEBSTER FOX:—I wish to bring to the notice of the members present, five specimens of black cataracts taken from three patients. No. 1 was removed from the left eye of a female May 11th, 1890. The patient gave a history of blindness for 14 years, and previous to this always had defective vision owing to an existing high myopia. In this operation I performed an iridectomy, and followed by rupturing the capsule and delivering the lens with a slight loss of vitreous, owing to greater pressure being required to force out the lens which was of unusual size. The wound healed rapidly and with a sph + 6. \ominus cyl + 2. ax. 35°, vision equalled $\frac{20}{160}$.

She had also a very high degree of convergent strabismus. On June 27th, I performed a double tenotomy with an excellent result, both eyes becoming straight.

*See No. 1, Vol. II, p. 26.

By December (1890), the capsule in the operated eye became so dense that vision fell to about $\frac{1}{10}$ th. Having had no inflammatory reaction after the first operation, but fearing danger from a capsulotomy on account of the fluidity of the vitreous, I obtained consent to remove the cataract in the right eye which was done December 7th. Remembering that I had to deal with a cataract of extraordinary size I made an extra large flap and a large iridectomy. The lens was removed with its capsule. The eyes progressed favorably and on December 30th, I found that the following formula gave $\frac{2}{3}$ vision: cyl. + 6 ax. 180° \ominus cyl. — 3. ax. 90° . To this a sph. + 3. added gave useful reading.

The above glasses were worn until June 21, 1891, when another test was made on account of a certain loss in visual acuity. This formula was as follows sph. — 1. \ominus cyl + 6. ax. 5° and gave two letters of $\frac{2}{30}$, and with an extra front glass of sph. + 2 J. $\frac{8}{10}$. The patient was subjected to an examination on April 10th, 1892, and no change found in visual acuity, it remaining the same as found in 1891. No change in the thickened capsule of the left eye. After the second operation erythropsia developed which continued for six months, when it gradually disappeared and the vision has since remained normal to light sensation.

Case 2. Male 61 years, was first examined January 11, 1891. The right eye-ball was removed early in life by a physician in Boston on account of dropsy of the eye-ball. The left eye was always myopic to a high degree, but the patient was able to follow his occupation, book-binder, until April 13, 1880, when he suddenly went blind. He could not give a clear history of the cause, other than the fact that the sight grew bad and the cause was attributed to a cataract.

On January 16, 1891, I made an examination and found an unusually large eye-ball and a black cataract; good projection of light. His family history was irrelevant and being encouraged by success in the prior case, I suggested an operation which was performed January 25th, without iridectomy. I experienced some difficulty in tearing the capsule, but delivered the lens with some loss of vitreous which was highly fluid. The movement

of the hand could be readily seen by the patient immediately after the operation.

During the night of the third day, a sudden discharge of phosphenes took place which so alarmed the patient that he suddenly sprang from his bed and it was with difficulty that his nurse could persuade him to lie down. An opiate was given him for in a short time the pain in the eye-ball became very great. I examined the eye early the following morning and from the extreme hardness of the ball, great pain and complete loss of vision, I was sure that an intraocular hemorrhage had taken place. Antiphlogistic remedies were promptly resorted to but the eye went from bad to worse, and to relieve the intense suffering the eye-ball was removed. Upon examining it I found complete detachment of the retina and the eye-ball filled with blood-clot.

Case 3. Female age 61. A history of failing sight for over five years. The examination revealed double black cataracts with good light projection in both eyes. Never could discern objects at a distance, always near-sighted, other than this eyes were apparently excellent. On June 21, 1891, the cataract was removed (iridectomy) without complication and the eye progressed favorably. Six weeks after the operation my assistant was hastily summoned to see the case on account of an iridocyclitis which ultimately led to loss of vision and ended in a partial atrophy of the eye-ball.

On November 8th, I performed an operation on the right eye. This operation was followed by permanent useful vision. This was the simple method and the lens removed in its capsule. I have not given the full details of these cases as I wish to have the lenses examined by some competent chemist to see whether he can find out the causes which produce the discoloration, etc. On account of the rarity of such cases I feel that these specimens may be interesting.

ABSTRACT OF A PAPER ON
"IMMATURE CATARACT AND THE BEST METHOD
OF HASTENING MATURITY,"

By JOSEPH A. WHITE, A.M., M.D.,

Senior Surgeon to the Richmond, (Va.) Eye, Ear, Throat
and Nose Infirmary,

RICHMOND, VA.

Dr. White, in this paper, presents his experience with a comparatively little used method of ripening cataract, seemingly done only by himself, and which he calls "the method of paracentesis and external massage." He considers the five other modes of ripening cataract, viz:

1st, Simple division of anterior capsule.

2nd, Division combined with iridectomy.

3rd, Division and external massage.

4th, Iridectomy and external massage (Foerster's operation).

5th, Internal massage directly on the anterior capsule.

He argues that the method he follows is free from all the dangers attending the others, and equally efficacious. In the fifteen cases operated on none had any unpleasant sequelæ, and the cataract in each ripened rapidly, the shortest time being two days, and the longest two weeks. Its advantages are, that the cortical masses are opacified, freed from the capsule, and more easily delivered in the subsequent extractions.

The time for the operation is when the patient can no longer read, although some of his cases had $V. = \frac{2}{20}$. Contra-indications are insufficient dilatation of the pupil under atropine and a weak zonula.

The operation is done by drawing off the aqueous thoroughly after a maximum dilatation of the pupil, and then rubbing the cornea up and down, from side to side, and round about with sufficient force to crush the cortical masses. It is especially

valuable in slow developing cataracts in persons under 60 years of age, and it obviates the necessity of removing such cataracts when immature, a proceeding always attended with more or less risk. It also does away to some extent with the necessity of irrigation of the anterior chamber, as the toilet of the eye is much easier in the cataracts thus ripened, the cortex being less sticky, and readily delivered. He considers irrigation a hazardous addition to the operation of extraction, and to be avoided if possible.

He reports in detail his last two cases, as also two by Dr. Dunn, Chief of Clinic at the Eye Infirmary (Richmond, Va.), to show the results of the operations. The subsequent extractions were done without iridectomy and with either a peripheral capsulotomy, or removal of the anterior capsule.

DISCUSSION.

DR. CHISOLM:—I thank Dr. White for his very interesting paper and valuable suggestions. For many years I have ripened immature cataracts by needling the lens and have seen no trouble come from it. The only annoyance was in the delay of the ripening; should the capsule opening be made too small, the lens changes are very tedious and repetition of the puncture is necessary. To hasten the restoration to useful vision in old persons, is a much to be desired object. I see annually so many persons made miserable by being debarred their daily occupation through an advancing lens clouding which makes annoyingly slow progress, any method which will put the lens in condition for a speedy extraction, and by so doing enable the patient to escape months of annoyance, is most valuable. I for one shall put it immediately to the test, and hope to obtain the excellent results that have followed the massage treatment at the hands of Dr. White.

DR. MINNEY:—The only criticism I would make on the Dr's paper is, it was unnecessary risk, after doing the operation for ripening the cataract, in permitting his patient to take in the town the same day.

DR. HOTZ practiced artificial ripening in 1885 and 1886 in all suitable cases; he followed Foerster's method first, but finding

often unpleasant, and sometimes very violent, reaction, he modified the operation in the same way as Dr. White did, evacuating the aqueous and applying massage through the cornea. But this method proved as uncertain in its result and as dangerous in its effect in some cases, as the other method; it made no impression on the lens in some cases and was followed by unpleasant reaction in others. In one case the first massage produced no change in the lens at all, and the same operation repeated three months later was followed by irido-cyclitis resulting in permanent opacity of the cornea. This experience made the doctor very reluctant to further attempt maturing cataracts, and he rather extracts a cataract which may not be fully mature than to take any chances on a preliminary ripening. The amount of transparent lens matter which remains after removing the nucleus and the bulk of the cortex is usually too small to create any disturbance by its subsequent swelling, and should it create any disturbance it could easily be removed by reopening the chamber.

DR. TILLEY expressed his views in favor of the conservative method advocated by Dr. Hotz. He further advocates the use of physiological salt solution as a wash for the anterior chamber and capsule of lens. Prof. Welch, of Johns Hopkins Hospital, has shown that the said salt solution is practically the only solution which can be used without danger to the epithelia of the tissue with which it comes in contact.

DR. PRINCE:—My experience, and the observation of the Illinois Charitable Eye and Ear Infirmary, lead me to give in my testimony in favor of direct trituration after iridectomy. I am of the opinion that by introducing a proper sterilized instrument into the aqueous chamber following an iridectomy and gently triturating the capsule, the danger of iritis will be avoided in great part, and the eye brought into a most favorable condition to facilitate the subsequent extraction.

DR. BAKER, of Cleveland, Ohio: Five or six years ago I operated upon three cases by the method detailed by the author of the paper. The reaction was so intense that I, like Dr. Hotz, have not felt justified in continuing the operation, and have returned to the preliminary iridectomy and subsequent

extraction with peripheral capsulotomy, using care to remove all cortical substance from line of incision and permitting the remainder to absorb. It seems to me this is a much safer course to pursue in these cases.

Dr. WHITE, in closing discussion on his paper: I am very glad to find that others have tried the method of ripening cataracts, suggested in my paper. As in all other surgical operations, opinions differ as to the value and efficiency, and different operators have different results. This may be attributable to the fact that the same exact method, the rules of guidance are not followed in performing the operation. In cataract extraction, whether to lack of observance of the same precaution, or to less dexterity, all surgeons do not have the same results. I regret that the gentlemen who have given this method of ripening cataract a trial have had at times unfortunate sequelæ. I have, I am happy to say, none. Whether this was due to a better selection of cases or to blind chance, I am unable to say. The results in 15 cases of my own and two of Dr. John Dunn, were as satisfactory as could be desired. I do not hesitate to recommend the operation to any of my personal friends as worthy of trial, because of my gratifying experience. One rule has, however, to be rigidly followed: never operate on a case when the pupil cannot be dilated add maximum, without difficulty by any mydriatic. If the iris is engorged or rigid, massage would be followed, in all probability, by iritis; and that may account for the bad results reported by my colleagues. Moreover the tension must be normal and the Zonula intact. In doing the operation the aqueous must be thoroughly evacuated and the massage graduated, not too light or no result will be achieved, not too violent or excessive irritation will be set up. This is a matter of practice. Of one thing I am satisfied, a careful and conservative trial of the operation will give it a permanent place in Ophthalmology.

ABSTRACT OF A PAPER ON
"INFANTILE CATARACT,"

By A. R. BAKER, M.D.,
CLEVELAND, OHIO.

He called attention to the necessity of having a more uniform classification of cataracts, and called attention to the statement made by Mr. M. C. Macnamara: "Microscopical specimens have demonstrated the fact that some of these Zonular Cataracts consisted of a film of connective tissue, together with remains of the hyaloid artery."

He also expressed the opinion that anterior polar cataracts were nearly always due to a perforation, or at least inflammation, of the cornea.

In conclusion he offered the following.

First. Infantile cataracts should be operated upon early—within the first year if possible.

Second. In Pyramidal and Zonular cataracts, in which vision cannot be improved to $\frac{2}{50}$, after fully dilating the pupil, removal of the lens is to be preferred to iridectomy.

Third. Fluid cataracts are best removed at once by linear extraction.

Fourth. Soft cataracts including Zonular and Capsular are best treated by first breaking up the lens thoroughly and removing a few days later, by the combined linear extraction and suction operation.

Fifth. Simple discission is sufficient in very many young infants unless nystagmus should be present.

Sixth. Only one eye should be operated on at a time.

Seventh. There are a few cases in which it may be advisable to extract one lens for distant vision, and make an iridectomy on the other eye so that a certain amount of accommodation may be preserved for near work.

ABSTRACT OF A PAPER ON
"INJURY OF THE LENS, WITH CASES,"

BY B. L. MILLIKIN, M.D.,
CLEVELAND, OHIO.

From a clinical standpoint injuries of the lens may be divided into two classes.

1st. Those where the chief injury is to the lens mass itself, and 2nd, where there is, in addition, a grave lesion of other structures of the eye-ball, the latter comprising a much larger proportion of all cases with which we meet.

In the first class are comprised such injuries as bits of steel or iron lodging in the lens substance, spicules of iron penetrating the cornea and lens, but not remaining, etc., these producing very different lesions, depending upon their size, form and the force with which they enter the eye. If these penetrate the lens and enter the vitreous, another complication arises, depending upon the ultimate lodgement of the foreign body.

The second class comprises a series of injuries of great importance and variety, depending entirely upon the structures involved, the most serious being those associated with injuries to the ciliary body, and the results will depend materially upon whether the foreign body remains in the eye or not. Also the age of the patient affects directly the outcome of all injuries. Most injuries of the lens are liable to terminate in traumatic cataract, more or less complete, depending upon the extent of the lesion to the lens or capsule. In the early history of injuries, the diagnosis is usually not difficult, and by dilating the pupil with cocaine or homatropine, a good view of the lens can be secured either with the ophthalmoscope or by oblique illumination. But with injuries of the iris and ciliary body in addition, the location is difficult or impossible, on account of the hemorrhage and other disturbances

Within a day or two the line of opacity through the lens will suffice to show readily the course of the penetrating body.

The rapidity of the development of traumatic cataract will depend upon the extent of the lesion of the lens, and especially of the capsule. Very frequently opaque portions of the lens change rapidly and considerable areas will be absorbed in a very short time. Sometimes a line of opacity will disappear entirely, leaving the lens matter quite clear; while again, such a line will remain for years, marking the course of a penetrating body, and if near the periphery will not interfere with vision.

Six cases are cited as illustrating the variety and progress of the various classes of cases.

Case I. Spicule of iron penetrating the cornea, iris and lens, showing within a few days an opaque line, at the point of entrance to lens, which shortly cleared completely, leaving no trace of injury, normal vision remaining.

Case II. Fragment of musket cap penetrating cornea, iris and lens, lodging in vitreous chamber and leaving, after twenty years, an opaque line through body of lens, and useful vision.

Case III. Explosion of powder in face, grain penetrating cornea and injuring capsule and lens, followed by opacity of lens over considerable area which ultimately cleared, leaving an opaque spot on lens, and vision nearly normal.

Case IV. Young lady of twenty, struck in right eye by barb of wire fence, producing irregular wound of cornea and capsule of lens, and some escape of lens matter into anterior chamber, and immediate loss of vision. Pupil was kept dilated with atropia, lens matter in anterior chamber rapidly absorbed, and opacity in lens quite extensive like wheel spokes, gradually cleared till she could count fingers at eight feet. Later, vision failed, probably due to re-development of cataract.

Case V. Injuries to both eyes at considerable intervals. Man aged twenty one, struck in left eye by an iron burr which produced lineal wound of cornea, and injury to capsule, lens matter escaping into anterior chamber. By operation, opaque lens material was removed. By second operation later, capsule was slit with favorable result.

A year later, right eye was struck by bit of steel which

penetrated corneo-scleral junction at lower outer quadrant, and anterior chamber filled with blood. Three days later, examination with oblique light showed striae of lens. Evidently traumatic cataract was developing rapidly but painlessly. Month later showed irritation greatly subsided, pupil irregular in shape with attachments in wounded region, middle lens portion clearing, but with more dense opacity directly behind seat of injury. Two weeks later, central lens portion well cleared, and opacity confined to neighborhood of injury. After nine months, sight failed and patient could count fingers at six feet only, cataract subsequently involving almost whole of lens.

Case VI. Man of twenty-five years struck in left eye by small piece of steel. Feeling no pain, and supposing the steel had not entered the eye, he continued working, though unable to see all day. At night, physician could not find a foreign body. Shortly after, opaque lens matter was removed by operation, but patient has been sightless except for bare outlines of objects. Pupil is now fairly clear, and cornea irregularly scarred, iris adherent above, and with ophthalmoscope the deep structures of the eye are invisible owing to dense opacity of the vitreous. Eyes are sensitive, and liable to further trouble, owing to foreign body still present.

Few lens injuries but leave some permanent damage. For the young, a prompt putting the patient in bed, and eye at rest, by bandaging and paralysis of accommodation is of utmost advantage.

The first requisite for both young and old, is removal of offending body when possible, then cleanliness by aseptic or antiseptic washes. Simple boiled water, or solutions of boracic acid and bichloride of mercury 1 to 5000, serve, when freely used, as eye washes.

The great danger and annoyance when the injury involves the iris, is the plastic adhesion of iris to lens. Atropia sufficiently strong to thoroughly dilate the pupil, and keep the iris out of harms way, is most valuable. For the young, there is little danger of glaucomatous symptoms. When such occur the increased tension may be avoided by emptying the anterior chamber.

The cataractous condition is doubtless largely due in such cases to abusive use of the organ where it should rest indefinitely.

Bandages need be employed usually, only till external wound is healed, unless hemorrhage requires their moderate pressure. Alternate use of atropia and eserine is efficient in irridic attachment cases.

In old people use of mydriatics must be watched carefully to avoid development of glaucomatous symptoms.

ABSTRACT OF A PAPER ON
"MANIFEST AND LATENT HYPEROPIA,"

By DR. EDWARD JACKSON, M. D.,
PHILADELPHIA, PA.

Dr. Jackson's paper was based on careful measurements of the refraction in 214 cases, before and after the use of a mydriatic. He found that under the age of 20, in only 21% of cases was there any hyperopia latent, and that from this age latent hyperopia became more frequent up to the age of 40 when it was present in 53% of all cases. The proportion of latent hyperopia found was largely dependent on the methods of testing for it.

In view of these facts latency of hyperopia must be regarded as inconstant and abnormal.

Lenses ordered without a mydriatic should only correct the manifest H.; and the correction of the total H could alone be regarded as a permanent correction.

DISCUSSION OF DR. JACKSON'S PAPER.

Dr. Würdermann, of Milwaukee:—

The cases of "Latent Hyperopia" as spoken of by Dr. Jackson in which there seems to be a considerable difference between the total and manifest hyperopia, occur as I have found it, about one case in 20, as is shown by the relative reaction of homatropine

and atropine. I find that in about 19 cases homatropine unmasks the full amount of hyperopic error, but in the 20th case I have to resort to atropinization.

Dr. Hotz disagrees with essayist in two points:—

First the comparatively small percentage of latent hyperopia in patients under 35 years. His experience is, that where manifest H. existed in such persons the suspension of accommodation usually unmasked an additional degree of H. 2nd, as to the degree of latent H. $\frac{3}{4}$ D. which the table shows as the highest degree, is certainly too low. In convergent squint we often find 1.50 to 2.50 D. latent.

Dr. Randall called attention to the fact that just as no one can stand without a muscular effort or tension, just so the hyperopic eye can see clearly only by a ciliary effort. Let the muscles be relaxed and the body will tend to fall and the vision to blurr; so the effort becomes habitual, yet the ciliary effort is no more a spasm than the other; either can in strictly similar manner be relaxed by the individual if the need for it is done away with.

Dr. Jas. A. Lidston said in response to Dr. Jackson's statements to the effect that latent hypermetropia is the exception, and not the rule: In my own cases of refractive error it seems to me that we must appreciate fully what the term latent hyperopia implies, and this is to be determined by our particular methods of testing. For example, if we resort to the ophthalmoscope we must fully concur with the doctor when he says "Latent hyperopia is the exception, and not the rule"; but if we resort to the ordinary method of testing without paralysis of the accommodation, then I am convinced by all the cases that have fallen under my observation, and by the experience of all Ophthalmologists that a certain amount of the hyperopia present will be held in abeyance and constitute the so-called latent hyperopia. Again when testing our cases and tabulating our statistics it seems that we are prone to forget that one individual may be suffering with a debilitated condition of the system which reacts upon the accommodative muscle, and this reveals an error which would otherwise be obscured and thus constitute a latent error

and in this case be styled latent hyperopia. Then, too, when the Dr. states that the accommodative mechanism is not materially impaired till later life, it appears that his experience does not concur wholly in this respect with that of others. Noyes basing his statements upon the admirable table of Donders, states that the accommodative power begins to wane as early as 16 years, and is quite noticeably impaired at the age of 30 and still more so at 50, and is almost obliterated at 75 years, so that this would exercise an influence directly opposite to that claimed by the Doctor in rendering manifest otherwise latent case of hyperopia.

ABSTRACT OF A PAPER ON
"WHAT MAY BE CONSIDERED NORMAL CORNEAL
ASTIGMATISM,"

By H. V. WÜRDEMANN, M.D.,
MILWAUKEE, WIS.

The author considers the ophthalmometer an essential instrument to the armamentarium of the specialist. It is generally held that this instrument gives nearly the total astigmatism of the eye. Würdemann does not find this to be the case, and thinks that the varying reports on the relation of the corneal to the total measurements may be accounted for by the personal equation of the operator and by his method of examination.

Instead of following the usual instructions for keratometry with the ophthalmometer of Javal and Schiötz (model 1889) by which an error of even 1 D. may be made, he advocates comparison of the black interspaces in approximating the plaques and reading off, on the graduated scale of the arc, the exact refraction of the principal meridians.

In the measurement of all sorts of corneæ on their principal and oblique meridians at 5° intervals from the visual center to

the limbus, he finds all corneae highly astigmatic in their periphery, and that in most cases the curvature diminishes more rapidly in the vertical than in the horizontal meridians. He considers that five degrees on either side of the visual center serves for most purposes of vision and if this area be free from astigmatic aberration the eye may be called non-astigmatic. The optical portion of the cornea, however, embraces an area of about 17° around the pupillary center (which nearly corresponds with the optic axis). This is ellipsoidal in shape with axis approaching the vertical being limited by the angular aperture of the pupil. This does not accord with the polar zone, which extends from 10° to 20° around the corneal axis. The latter is ellipsoidal with long diameter in direction of general astigmatic axis.

The amount and kind of astigmatism is influenced by the relative position of the visual line to the different parts of the polar zone. Degrees of corneal astigmatism of 3. or 4. D. may be produced by the visual line passing eccentrically through the cornea, and in his opinion is one of the principal factors in its production.

From the records of 300 eyes, of which 63 were emmetropic, 52 simple hyperopic and 8 simple myopic, the rest showing total astigmatism, he finds 93% of the whole number to have corneal astigmatism appreciable by the ophthalmometer. All of the cases where the total equalled the corneal measurements, were found in the latter. All of the emmetropic, hyperopic and myopic eyes had corneal error ranging from a little less than .25 D. to 1.50 D. In adults the corneal astigmatism was usually .50 D. *greater* than the total, when the meridian of greater refraction was *vertical*, and the same amount *less* when *horizontal*. In old people the average difference was .25 D. and in children, .75 D. Most of the cases where the total equalled the corneal error were found in the elderly. This is a general statement, as the amount of astigmatic aberration is modified by the kind of general ametropia and the amount of lenticular decentration. The difference is neutralized by a corresponding lenticular astigmatism *against the rule* which has its origin in the oblique position of the lenticular refraction surfaces to the visual line. The decrease in difference observed in old subjects

may perhaps be explained by senile changes in the lens structure increasing its refraction. He considers that a total astigmatism is not fully corrected by cylindrical lenses on account of the irregular or meridional astigmatism which exists in all eyes within a few degrees of the visual axis. He regards that amount of corneal astigmatism as normal which is neutralized by the lenticular error. This irregularity in the corneal refraction may be considered a corrective effort on the part of nature in setting aside a certain amount of lenticular error. In the use of the ophthalmometer for glass fitting, he is prepared generally to *subtract* .50 to .75 D. from its readings when with the rule, in children, and to add the same when *against*. In adults the difference is usually .25 to .50 D. When the meridian of greatest refraction is oblique, the corneal and total errata are about the same, and when at other angles a greater or less variance is to be expected according to the relative nearness of the principal meridian to the vertical or horizontal. When no corneal error exists, there is total astigmatism against the rule.

DISCUSSIONS ON DR. WÜRDEMAN'S PAPER.

DR. NOYES :—An experience of seven years with the ophthalmometer of Javal & Schiotz, and upon perhaps 2000 eyes, has given me certain data, about some of which I wish to speak.

The curve of the cornea is not such as to conform to any known mathematical figure. Hence, iridectomy for visual purposes, with central corneal opacity, must yield very imperfect vision. But with clear cornea after cataract extraction, visual acuity is just as good with iridectomy as without iridectomy.

A case in point was a man about fifty, who had V. $\frac{2}{20}$ and the ophthalmometer showed 1.00 D. of astigmatism; the addition of the cylinder gave him V. $\frac{2}{12}$. Hence the irregular curve of the corneal periphery had no damaging effect. Ophthalmometry shows many more cases of mixed astigmatism than would ordinarily be found. This may be only .50 D. or 1.00 D. and it is important.

Vision is almost always less than $\frac{20}{20}$ when the axes of the astigmatism are oblique. The ophthalmometer obviates the result of a mydriatic and I use it much less than formerly, and confine it chiefly to cases where there is great pain and sensitiveness, and its purpose is as an anodyne rather than an essential routine to the optical correction.

The principal meridians are often not at right angles to each other, say 75° and 180° or 90° and 30° and other varieties. In these cases the choice of the patient will usually put the axis at 90° or 180° , and his preference must be respected.

My method usually is, after the first rough test by glasses, to employ the ophthalmometer; then to put behind the ophthalmoscope the required cylinder and find the combination which gives in the upright image a perfect view of the fundus. My own ophthalmoscope is supplied with a clip to carry the cylinder. Then another and pains-taking test by trial glasses will give the proper glass which will be prescribed. I have greatly aided myself in this test by using a card of letters founded on a visual angle of $4'$ instead of the Snellen $5'$. By these means a single sitting without atropia will usually give a satisfactory conclusion.

With very young subjects mydriatics will more frequently be needed than with adults; but it is also true that children under 12 years will often refuse to accept even high cylinders for constant use and take them only in near work, and in some instances, even for reading, they will sometimes discard them.

Dr. S. D. RISLEY:—I want to call attention to one remark made by Dr. Noyes, viz., that the glass ordered is the one selected by trial and not upon the basis of the scientific findings of the ophthalmometer. This is in accord with my own experience. The glass must be the one chosen by the patient as giving the highest acuity of vision. Regarding the use of mydriatics the majority of cases suffering from asthenopia fall under the category mentioned by Dr. Noyes as needing the sedative effect of the mydriatic. Without their use patients will come selecting different glasses day after day, whereas under their use there is a greater uniformity in this respect, and:

while at the first vision is below the normal, under their continued use vision will steadily improve although same glass may be chosen.

DR. EUGENE SMITH:—I believe abnormal astigmatism to be any degree of astigmatism existing in cases of asthenopia. I depend upon Javal's ophthalmometer, retinoscopy, ophthalmoscope and their verification with the glasses of the old test cases. I do not find it necessary to use mydriatics as frequently as formerly. Their use is in fact the exception. When the radii of lesser and greater curvature do not agree in the two eyes, with the ophthalmometer, I frequently find the patient's head so twisted as to place the eyes on a different plane. When this exists I correct the position of the head and begin over again, and seldom do I find the axes unsymmetrical. The ophthalmometer is invaluable in daily practice, and so is retinoscopy; and I wish to here state that mydriatics are not necessary in a large majority of cases.

Dr. HUBBLE, of Buffalo, N. Y., said that he had tried the various objective methods for determining refractive errors and had derived much aid from the "shadow test" and the ophthalmometer of Javal. He had learned by an extensive experience with the latter that, in general, the cylinders that should be prescribed should be weaker than the degree of astigmatism indicated by it, and that the greater the astigmatism, the greater should be the under-correction. In a conversation recently, Javal had stated to him that it was generally necessary to increase the amount of under correction, the greater the astigmatism shown by this instrument. In his book on ophthalmometry he had tabulated the differences that should be made.

A recent writer in the Philadelphia Medical News had mathematically demonstrated that, on account of certain errors in the construction of the instrument, the degree of astigmatism that really exists in a given case is less than that shown, and that the difference increases in proportion to the amount of astigmatism. Bearing these differences in mind, the ophthalmometer was exceedingly valuable in determining astigmatism.

Dr. SAVAGE:—Astigmatism, as is well known, can be corrected by either lessening the greater curvature by means of a concave cylinder, or increasing the lesser curvature by means of a convex cylinder. An eye not under the influence of a mydriatic will often prefer a concave cylinder when the refraction is hypermetropic. To avoid the error of prescribing a — cyl. when a + cylinder is indicated, a mydriatic should be used. It has been my practice to use a mydriatic in all my refraction cases under 45 years, and I am so well satisfied with it I shall continue to use it, although it is beginning to be fashionable to do without it. By its use only can we be sure that the ciliary muscle is at rest. No harm can result while much good may follow.

Dr. WÜRDEMANN, MILWAUKEE:—In regard to the use of mydriatics in refraction work I find it necessary in fully $\frac{3}{4}$ of my work. Skiascopy under mydriatics, in favorable cases, is accurate to .25 D., and in the general run of cases without mydriatics .50 or .75 D. may be allowed for the personal equation of the operator. The direct ophthalmoscopic test is accurate to .50 to 1.00 D. with the accommodation paralyzed, and a still greater error may be allowed, without the mydriatic, for the action of the accommodation of the operator and that of the patient. The ophthalmometer offers us a test which, when accurately done, measures the corneal curvature to within .25 D. For this test we do not need mydriasis.

In all refractive cases we must average all results, allowing a certain amount for the wishes of the patient, but not placing too much stress upon his preference when against the objective test. I consider that even 2.00 D. of total astigmatism with the rule may be considered normal when it gives rise to no asthenopic symptoms, which by the way are caused by over-strain of the accommodation due to close approximation of objects in the endeavor to obtain clearer images. The normal lenticular astigmatism ranges from .25 to 1.00 D., being the difference between the total and corneal. In low degrees of astigmatism, and in eyes with no total astigmatism, we find that the corneal measurements differ more widely from cylinders presented than in those eyes with a high degree of corneal astigmatism. I have ascribed this to my disposition to under-correct high degrees of astigmatism, the same as I generally give an under-correction for hyperopia of high degree.

ABSTRACT OF A PAPER ON
"RESECTION OF THE OPTICO-CILIARY NERVES,"

By JULIAN J. CHISOLM, M.D.,
BALTIMORE, MD.

In this paper Dr. Chisolm gives his experiences of the past 13 years. He makes a strong plea for neurotomy as against enucleation, in all cases of eyes which are not deformed in appearance, although they may be sightless, and the cause of much suffering and danger. At the Presbyterian Eye, Ear and Throat Charity Hospital of Baltimore City there have been 81 of these neurotomies, a sufficiently large number to draw safe conclusions from. He has met with none of the dangers which some Surgeons have experienced. In no case has life been jeopardized; nor has there been in a single case any annoying hemorrhage, orbital abscess, cellulitis, corneal sloughing nor, as far as he is aware, eye-ball atrophy. He has not been able to trace all of his cases since they left his hospital. In 4 cases only, as far as he has been able to learn, has enucleation been required as a subsequent operation. Other patients may have been compelled to have had recourse to this more radical method, but if so it has not come to his knowledge. He has been visited by many of his patients years after the neurotomy. He found them enjoying perfect comfort from suffering, and with a good looking eye, infinitely more valuable than any artificial eye that could have been obtained. He thinks that many surgeons have become timid concerning neurotomies from the dangers which have followed the operation at the hands of others, without considering the causes which might have induced the trouble. He thinks that most of these can be traced directly to the operative procedure.

In the very first year of his trial, he abandoned the elaborate manual as one fraught with danger. The cutting of muscles tended to future deformities, the exposure of the nerve to the

eyes of the operator, with the extensive dissections necessary to this end, excited cellulitis, and induced complications. His method of operating is of the simplest. Under a general anæsthetic (he administers the bromide of Ethyl because of its promptness and also its evanescent nature) he makes a horizontal snip of the conjunctiva running parallel with lower border of the inner rectus muscle, the duplicate of that made for squint: when the fascia has been also freely opened by means of the scissors, a sharp hook is passed through the wound and into the sclerotic. By means of this the eye-ball can be rotated forcibly outward, bringing the bundle of nerves within easy reach for section. The enucleation curved scissors is introduced through the open wound to the back of the eye. Using it as a probe the optic nerve is sought. When this cord is felt the point of the scissors, with its closed blades pressing against the nerve, is slowly drawn outward. The moment the nerve escapes, the blades of the scissors are widely opened, the nerve bundle caught between them, and the entire mass divided. The recognized toughness of the optic nerve, and the consequent resistance to the closing scissors is a sure evidence that the proper structures have been secured. As another sign that the section has been completed the closed scissors will move in all directions behind the eye-ball without meeting any resistance. The ciliary vessels have been divided simultaneously with nerves. Blood at once escapes into the socket, causing the eye to protrude from between the lids. Some blood also escapes from the conjunctival wound. To prevent much eye-ball displacement a compress and bandage is immediately applied firmly over the eye, and is left in place for twenty-four hours. Should firm pressure cause pain a hypodermic of morphia brings prompt relief. On examination of the eye the day after the nerve section complete anæsthesia of the cornea is the evidence that the object of the operation has been accomplished. The patient is ready for dismissal after a very few days, the only drawback being a very black eye from blood extravasation, which will take two weeks for removal.

The operation is so simple and rapid in its execution, and so devoid of danger, that patients will accept it who refuse the

enucleation. If an eye is ugly looking, as well as painful and dangerous, no surgeon would advise its retention. But when the dangerous eye is still good looking he gives the patient the chance of retaining it by nerve section. He is sure that he has made a great many families happy by this operation, and at the same time has given all the safety that the removal of the eye could have secured.

ABSTRACT OF A PAPER ON
“THE CONSERVATIVE MANAGEMENT OF
LACHRYMAL OBSTRUCTION,”

By S. D. RISLEY, M. D.,
PHILADELPHIA, PA.

Dr. S. D. RISLEY presented a short paper on the conservative management of lachrymal obstruction. He claimed there were many cases of partial lachrymal retention liable to be overlooked, since the retention was obvious only under exposure or during the use of the eyes at near work. The retained tears were however the cause of much discomfort in the use of the eyes, because of the resulting conjunctival hyperæmia and the disturbance of the corneal refraction by the pellicle of tears. This condition it was claimed was due in some instances to contraction of the lachrymal punctum, which, as was demonstrated by a series of microscopical sections and drawings, is provided with a sphincter muscle; and in others, to affections of the mucous membrane in and around the nasal end of the lachrymal duct. In treating this condition simple dilatation of the sphincter was often sufficient, but when this failed it should be nicked in the direction of the canaliculus and kept permanently open. In treating the milder forms of blennorrhæa of the sac, either acute or chronic, it was often sufficient to nick the punctum which then admitted readily the point of the

syringe, and permitted the thorough cleansing of the sac and the application of any desired treatment to its inflamed walls. The closure of the nasal duct, it was claimed, is often due to a uniform thickening of the lining membrane rather than to a localized or limited stricture. The treatment therefore should be directed to the relief of the thickening. While the use of probes was frequently necessary, a successful issue could often be reached by careful syringing and internal medication within them. By the instillation of cocaine into the sac the thickening of the tissues could be reduced and fluids would then flow freely into the nose. After thorough cleansing, solutions of nitrate of silver, grains one to the ounce, tannin or weak iodine solutions could be instilled. The painful probing of the duct could, by this means, be avoided in many cases. When the probes are a necessity they should be only large enough to pass snugly through the duct and should be inserted with great care, certainly without violence, lest the inflamed and brittle membrane lining the uneven surface of the bony duct be torn, and the probe forced downward between the bone and mucus membrane, an accident which always retards the progress of the case and often does permanent injury. In speaking of the etiology of lachrymal disease, he urged the frequency with which the tear duct trouble was associated with nasal disease, in some instances unquestionably secondary to it, while in others the trouble on the floor of the nose and at the anterior end of the inferior turbinated, seemed due to the absence of the usual flow of tears, which allowed the parts to become dry and liable to disease. On the other hand there had, in his experience, been a larger group of patients in which the lachrymal retention, and hyperæmia of the drainage system were unquestionably a part of the chain of symptoms associated with eye-strain. The cases with marked choroidal disturbance associated with astigmatism were especially prone to conjunctival thickening in the retro-tarsal folds, swollen caruncles, and epiphora. Typical cases were detailed to substantiate these views, in which the most varied and pains-taking treatment had been unsuccessful until the existing error of refraction had been corrected, or the nasal trouble removed by treatment. In young children surgical

treatment was rarely needed, and two cases were recorded in which the usual treatment was fruitless until other manifestations of syphilis were detected, and rapid recovery from the epiphora followed the mixed treatment alone.

ABSTRACT OF A PAPER ON
"RHINITIS CAUSED BY EXOPHORIA,"

By LEARTUS CONNER, M.D.,
DETROIT, MICH.

Dr. CONNOR reported a peculiar and striking illustration of the effects of exophoria. There was absolutely no other deformity of the eyes or general disorder, so that the most distressing rhinitis, which recurred at intervals of a few days and lasted rarely less than two days, was distinctly referable to the exophoria. Attending the rhinitis was deafness, tinnitus aurium and loss of smell. The affection had lasted more than two years and was attended with great and increasing nervous prostration. The correction of the exophoria was followed by a complete cessation of the attacks of rhinitis, and gradually of the deafness and tinnitus and general prostration. The sense of smell at the end of three months after the correction of the exophoria had partially returned.

To more certainly settle the question of the relation of the exophoria to the attacks of rhinitis, the correction of the exophoria was removed for a couple of days when the rhinitis promptly returned. The case is interesting because of the uncomplicated existence of a single cause of the disorder.

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DR. ROOSA'S VIEWS ON "ASTIGMATISM; ITS RELATIVE IMPORTANCE IN ASTHENOPIA DUE TO ERRORS OF REFRACTION" REVIEWED.

In reviewing Dr. Roosa's paper* we propose dealing fairly with him and honestly with the subject under consideration. The Doctor seems to have had three chief aims in the publication of his paper: First, the laudation of the ophthalmometer; Second, the correction of astigmatism, ignoring hypermetropia that may be associated with it if not more than 2.50 diopters; Third, the banishment of the midriatic.

As an aid to the oculist the ophthalmometer is very valuable—almost indispensable. No one can deny that it shows with a high degree of accuracy the curvature of the cornea: and, when the meridians differ in curvature, marks with great precision the location of the two principal meridians. If corneal astigmatism exist it quickly shows whether it is according to, or against, the rule; but in no case does it enable the observer to determine

*See Ophthalmic Record Vol. I, No. 12, page 397.

whether the astigmatism is myopic, hypermetropic or mixed. Lenticular astigmatism, far from being uncommon, greatly complicates the findings of the ophthalmometer, for of lenticular astigmatism the ophthalmometer can tell nothing. Often does the observer find that a tilting (the accepted cause of lenticular astigmatism) of the lens has lessened the effect of the corneal astigmatism, and occasionally that it has increased it; and, too, he not infrequently finds that, the tilting not being in line with either of the principal meridians, the axis of the correcting cylinder must be placed in an unexpected position—several degrees away from the place marked by the ophthalmometer. As valuable as is the ophthalmometer it would be ten fold more valuable if there were no lenticular astigmatism.

In lauding the ophthalmometer Dr. Roosa most certainly underates the value of retinoscopy. A comparison of ophthalmometry and retinoscopy will, in the main, be in favor of the latter. Both are means for objective determination. The *time* consumed in these investigations is in favor of the ophthalmometer. The ophthalmometer will mark more accurately the principal meridians. The one tells as readily as the other if the astigmatism be with, or against, the rule. The ophthalmometer tells only the quantity of the astigmatism, while retinoscopy tells both the quantity and the kind. The ophthalmometer takes into consideration only the corneal astigmatism, while the retinoscope reveals the combined corneal and lenticular astigmatism. Both means are time-saving and labor-saving. Neither should be discarded from the armamentarium of the oculist, nor should either be relied on implicitly in the work of refraction. The subjective test by means of the tried and true "*old test case*" of lenses must now and always be resorted to pains-takingly by him who desires accuracy in the work of correcting errors of refraction. The ophthalmoscope, the retinoscope and the ophthalmometer are lower trial courts; the test case of lenses is the court of appeals, in which the judgement of the lower courts is often modified.

As a basis for his argument in favor of correcting astigmatism alone, when even 2.50 D. of hypermetropia exists, Dr. Roosa departs from the usual belief that the emmetropic is the

normal eye, and states that the normal eye is the one whose refraction is hypermetropic; but he does not tell us, in so many words, just how much hypermetropia must exist in order that the eye may be said to be normal.

With emmetropia as the standard, we all can have a fixed idea as to the normal eye; with hypermetropia as a standard every man can have an idea of his own as to the normal eye, one having as much right (and reason) to claim 5.00 D. for normal, as another would have to claim that 1 D. is the normal. Argument cannot now be necessary to prove that the emmetropic eye is, and should always be, the standard, the normal eye. Practice based on any other view must always be chaotic.

One about to abandon the "old paths" in refraction work should stop to enquire "Why give glasses at all"? His answer would soon come, "To relieve asthenopia". Immediately another question would arise: "What causes asthenopia"? The ready answer to this question would be "Strain". Eye-strain is understood by all to be abnormal muscle work. What is the character of muscle work done in astigmatism that this condition should be the sole cause of asthenopia, or at least *the* cause before which all other causes pale into insignificance, according to Dr. Roosa? Eye-strain can be divided into only two classes, intrinsic (strain of the ciliary muscle) and extrinsic (strain of the muscles that move the eye-ball). In astigmatism, with the principal meridians vertical and horizontal, the only muscle brought into undue activity is the ciliary.* Just how this muscle acts is a matter not fully settled, some claiming that the whole muscle acts clonically, thus, at different moments, focusing on the retina the rays in the planes of the two principal and intervening meridians. Others claim that there is a tonic contraction of two opposite sections of the ciliary muscle in the plane of that meridian of the cornea with least curvature, and in this way increases the refractive power of a corresponding part of the lens, thus neutralizing in part, or in whole, the corneal astigmatism. Still another view, not at all improbable, is that at one point the

*The astigmatism could be so great as to compel the patient to hold the book too near the eyes and thus make the internal recti do too much work.

meridional fibers (Bowman's) of the ciliary muscle contract and tilt the lens so as to give lenticular astigmatism at right angles to the corneal. Which-ever view is correct there is, beyond question, ciliary strain in cases of uncorrected astigmatism, which strain all agree is one of the causes of asthenopia. To relieve the asthenopia the astigmatism must be corrected; to correct the astigmatism carefully and accurately the ciliary strain, whatever its nature, must be suspended by a mydriatic, unless the patient, because of age, has lost ciliary power.

In oblique astigmatism there is the same kind of ciliary strain as in the non-oblique, and in addition there is symmetrical strain of the oblique muscles;* the higher the degree of the astigmatism and the greater the obliquity of the principal meridians, the greater the strain on the obliques. Because of the dual nature of the strain in oblique astigmatism we would naturally expect it to be the cause of greater asthenopia than results from non-oblique astigmatism.

The ciliary strain exists in all kinds of astigmatism, and its suspension, by means of a mydriatic or age, is a pre-requisite to perfect accuracy in the adjustment of cylinders. All varieties of astigmatism should be corrected fully in cases of asthenopia, and all the aids at our command should be used in order that the best results may be obtained.

But can astigmatism be the only cause of asthenopia? Dr. Roosa, in his paper, says that hypermetropia is one of the causes, but he teaches that it is an inoperative cause when of lower grade than 2.50 D. unless conjoined with astigmatism. The character of ciliary strain in hypermetropia is tonic and general, and is just as capable of causing asthenopia as is the ciliary strain in astigmatism. Tonic muscular contraction is even more likely to result in fatigue and suffering than is clonic contraction. The emmetropic eye is beyond controversy, the eye that is free from troubles of every kind; and any variation from this standard that excites muscle strain in order to approximate good vision is an undesirable condition. Whether we have astigmatism or hypermetropia there results eye-strain that can, and does, excite asthenopia in some of its varied forms. Both of these condi-

*See Ophthalmic Record, No. 1, Vol. 1.

tions, whether existing alone or together, should be corrected in order to relieve the strain. When they co-exist, a correction of the one or the other, by removing one of the factors constituting the cause, will give temporary relief more or less complete; but after a longer or shorter period the uncorrected factor will cause a return of the asthenopic symptoms.

It is difficult to produce one single sound scientific or clinical reason for not correcting the hypermetropic error, as well as the astigmatic, in any case of asthenopia. The full correction makes the eye artificially emmetropic, giving sharp distant vision without strain, and allowing near work to be done with only that amount of strain that is exercised by the emmetropic eye. The uncorrected hypermetropic eye, because of the strain necessary for seeing, is far more susceptible to pathological conditions than is the natural or artificial emmetropic eye.

It is well known that eye-strain is a prolific cause of styes, marginal blepharitis and chronic conjunctivitis. While it is not so well known it is equally as true, that eye strain causes intraocular troubles, such as diseases of the iris, ciliary body, choroid and retina, and secondarily, because of altered nutrition, that common source of blindness, cataract.* The more general becomes the custom of correcting astigmatism, hypermetropia and myopia, the fewer will be the number of patients suffering with the diseased conditions named above; and asthenopia dependent on these errors will have no existence in the cases corrected. The clinical reason given by Dr. Roosa for not correcting the hypermetropia in some of his reported cases, viz: that they were more comfortable without than with the spherical correction, no doubt had its foundation in a want of careful centration (or decentration if needed) of the lenses, or in allowing them to occupy a tilting position in front of the eyes. No pair of eyes free from heterophoria will long refuse to take kindly the lenses that will help them to focus parallel rays on the retina without strain, provided the proper attention has been given to the cutting and placing as well as the grinding.

For scientific reasons the mydriatic should not be banished. Only when the ciliary muscle is in a state of rest can an absolutely accurate study of the refraction of the eye, by any

* See Risley's paper in Vol. of proceedings, Section Ophthalmology, A. M. A., 1891, page 25.

and all means at our command be made, even by those who, because of long experience and careful study, are most expert. Mydriatics alone can put the ciliary muscle of young and middle aged people in a state of rest. It does no harm when used in these cases, and for the time acts as a sedative. If homatropine be chosen (and it is wholly reliable when properly used) the inconvenience caused by the dilated pupil and suspended accommodation passes away of its own accord in thirty-six to forty-eight hours; and by use of a solution of eserine may be brought to and end in a much shorter time.

The traveling quack oculist will hail with delight the verdict of respectable oculists banishing the mydriatic, for he knows that those on whom he would practice will not allow him to put such medicine in their eyes. He will invest a few more hundred dollars in showy instruments, without having knowledge how to use them, and will travel from place to place announcing his wonderful equipment and publishing in the daily papers that "Doctor so-and-so, a most famous oculist, has declared it wholly unnecessary to put any medicine in the eyes in order to give correct glasses, since the invention of these wonderful instruments." But it must be confessed that this reason would not stand unless there were scientific reasons for holding on to the mydriatic, a "*magnum Dei donum*" for which we all should be thankful.

This review can be justly extended a little further because of a quotation made by Dr. Roosa from Berry, which is to be found in a foot-note on page 401, Vol. 1, of this journal. Berry is young and will live to see the day, should he, with an unprejudiced mind, continue to be an investigator, when he will take no pride in reading a part of his paper (that part quoted by Roosa) recently read before the Ophthalmological Society of the United Kingdom. The oculist who believes that there is no ocular cause for asthenopia except errors of refraction is greatly deceived; and of this he can convince himself by careful study, and clinical investigation. Heterophoria has a real existence, and is a very common cause of the various symptoms included in the term asthenopia. Many of these cases can have their heterophoria corrected and comfort secured by decentration of the lenses required for focal correction; while there are many more cases that must continue to suffer unless relieved by a partial tenotomy (not a so-called, but a real) which can be done easily, but must be done carefully. A safe line can be drawn between operative and non-operative cases.*

* See Ophthalmic Record, double No. 7 and 8, vol. 1.

NEWS ITEMS.

DR. LANDOLT ON CATARACT.

The *Record* is fortunate in that it will publish soon an exhaustive paper on Cataract written by Dr. Edward Landolt, of Paris. The paper is now in the hands of Dr. Culver who will make a perfect translation of same. The paper will occupy about sixty pages, and will be read with great interest by every subscriber to this Journal. It is expected that Dr. Landolt's paper will be ready for the next issue.

THE ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES, for 1892' in 5 vols. is now ready for sale and delivery. The editor, Dr. Sajous, is to be congratulated on getting so good work out of his small army of associate editors. The value of these volumes can be seen when it is stated that all that has been published during the year, in 1027 Medical Journals in this and other countries, has been examined, and the best thoughts have been culled and brought together for the ready reference of the busy practitioner.

The best specialists are those who, not content with only the literature of their own department, learn all that they can about the other departments of medicine and surgery. Sajous' Annual will furnish this information at a minimum of cost in time and labor.

Not only have the Journals been searched for thoughts of value, but all new books and monographs also have been passed beneath the scrutinizing eyes of the editorial staff of the Annual.

\$100.00 PRIZE.

Dr. G. M. Gould, editor of *The Medical News*, Philadelphia, offers a prize of \$100.00 for the best essay on "Modern Homeopathic Practice," with the view of showing historically and

accurately what he terms the "*ridiculous pretensions*" of same. Competing essays must not contain over 15,000 words, must be written in a simple and direct style adapted to the commonest lay understanding. The papers must be in hand Jan'y. 1st, 1893; must be type-written and signed *nom-de-plume*. A sealed letter associating real name and *nom-de-plume* must accompany each essay. The essay receiving the award of the committee will be published for general distribution, and will be sold to physicians at actual cost.

This offer is made in Dr. Gould's published address on Quackery.

Dr. R. O. COTTER, of Macon, Ga., an earnest and conscientious worker in Ophthalmology, has recently been elected president of a bank in Barnsville, Ga. Because of this new duty he has associated with him in his practice Dr. C. H. Peete, a former pupil of the editor of this journal. It is needless to say that the writer believes Dr. Peete worthy of the honor which he has received. It is to be hoped that Dr. Cotter will not become so infatuated with a banker's life as to be led, later, to abandon the practice of ophthalmology.

In this issue will be found, fronting last page of reading matter, the full page advertisement of Shiefferlin & Co. Oculists will be specially interested in Aristol and Europhen, both of which are valuable additions to our list of remedies.

There is no ophthalmic journal published in the English language that English speaking ophthalmic surgeons can afford to do without. While the editor of the *Record* wishes his journal to go to the office of every oculist in the United States and Canada, he would be glad to know that its contemporaries are to be with it. We intend that the *Record* shall be useful as a bearer of information; and, that, reflexly, it shall make other journals increase in usefulness. If you are not a subscriber we wish you to become one, and thus help in a good work.

Department of Otology, Laryngology and Rhinology.

GEO. H. PRICE, M. D., EDITOR, 621½ Church Street,
NASHVILLE, TENN.

Continuation of the
SCIENTIFIC PROCEEDINGS OF THE
Section of Laryngology and Otology of the A. M. A.,
at the Detroit Meeting, June, 1892.

EUCALYPTOL IN DIPHTHERIA.

BY MARION THRASHER, M.D.,
SAN FRANCISCO, CAL.

An epidemic of Diphtheria pervaded portions of San Francisco, during the winter months of 1891-92.

It was most plentiful and virulent in that part of the city where the sewage became stagnant in the subterraneous conduits. The writer was located in that quarter, and had ample opportunity for practical study in this much-to-be-dreaded disease, Diphtheria.

California, years ago, imported the Australian gum tree—the *Eucalyptus globulus*—for shade, it being a tree of rapid growth. The people soon learned that it absorbed malaria, and many other floating germs of diseases, transforming unhealthy into healthy localities.

The writer did not fail to notice, that, in the above epidemic, diphtheria was rarely found in houses, surrounded by eucalyptus groves; and when it did exist, it had been transplanted, and was very mild, or it sprang up through neglected sanitary conditions.

From the fresh leaves of the Eucalyptus, are extracted two terpenes, one of which is eucalyptol. The eucalyptol is a powerful germicide, a disinfectant, a stomachic, a tonic, a stimulant, and anti-periodic. In small doses, it produces mental activity, accelerates circulation and respiration, excites salivary secretion, promotes appetite, causes diaphoresis and increases the elimination of urea. It is expelled from the system through the mucous membrane of the fauces, trachea, bronchi, skin and kidneys. In short, it possesses, all of the characteristics that a remedy should possess, to meet the requirements of the pathological conditions found in a typical case of diphtheria. Theoretically it is perfect, and practically it is as near a specific as any one remedy that we have found.

The exudation, in diphtheritic inflammations, is not only upon, but within, the substance of the mucous membrane. Eucalyptol applied locally, destroys the external exudation, the product of the Löffler-Klebs bacillus and taken internally, is excreted through the mucous membrane, thereby ridding the diseased tissue of its toxic growth. Anorexia, a prominent symptom, is overcome by the stomachic and tonic effect of the Eucalyptol. Blood poisoning is early noticed in the saffron skin. This may be counteracted and overcome usually with Eucalyptol, bichloride of mercury and quinine.

Cardiac weakness, should be promptly anticipated, with a generous diet of milk and eggs, supplemented hourly with brandy and digitalis. Ventilation should be as perfect as possible, and everything in the sick chamber kept disinfected and scrupulously clean.

The writer uses a ten per cent solution of Eucalyptol in pure alcohol, and applies it locally to the diphtheritic exudation every hour, day and night, and hourly administers nutrients, tonics and stimulants.

Dr. Forcheimer's article in the April number, 1891, of the International Clinic, on Tonsillar Diphtheria, first called the

writer's attention more particularly, to the value of Eucalyptol in the treatment of throat infections. Neither trypsin, papayotin, nor per oxide of hydrogen, are comparable to it, in the treatment of diphtheria. The etiology and pathology of this disease, so aptly named, the "enemy of childhood," were so illy understood until quite recently, that medical treatment only increased the gravity of the prognosis. The false idea, universally prevalent, that the diphtheritic membrane, was but a fungous growth upon the throat surface, only to be destroyed by cauterization, was but adding fuel to the fire. No physician was dextrous enough to "swab" the throat and touch only the diseased part; much less the inexperienced nurse, to whom this task usually was assigned. This operation would be difficult enough, were the patient an adult, which was seldom the case, but when it was a crying, squirming, fighting child, is it any wonder that the lunar caustic made dozens of blistering patches on the hitherto healthy tissue, on which the false membrane would further spread.

Need we be astonished that, under such misconception of pathology and treatment, the disease attained such an alarming mortality?

The fatality is greatest among children from three to five years of age, for no other reason than from the fact, at this age, it is so difficult to practically apply the usual remedies in throat medication. But the Eucalyptol solution is an exception. The writer when he finds it impossible in early childhood to apply the saturated sponge directly to the diseased surface, pours hourly, or half hourly a teaspoonful of the medicine, down the child's throat, holding it, the meanwhile. Its struggles will bring the solution in contact with the diseased mucous membrane, and accomplish the same purpose the gargle or swabbing does in an older patient. Should it come in contact with the adjoining healthy tissue it will give tonicity to the parts and render them, as well, antiseptic, thus preventing the spread of the exudation.

ABSTRACT OF A PAPER ON
"CATARRHAL SORE THROAT IN THE
LAKE REGION,"

By J. M. G. CARTER, M.A., M.D., Sc.D., Ph.D.,
WAUKEGAN, ILL.

Prof. of Pathology in the College of Physicians and Surgeons, Chicago,
Fellow of the American Academy of Medicine, etc.

Read in Abstract before the A. M. A., Detroit.

This paper discusses only those cases which are properly termed catarrhal, and does not include cases of membranous croup and diphtheria. These catarrhal cases occur very frequently on the lake shore. During a residence of nine years at Waukegan, on the shore of Lake Michigan, the writer has treated several thousand cases of sore throat in various forms, of which about two thousand were catarrhal. These inflammations sometimes are confined to the tonsils, sometimes to the pharynx and sometimes to the larynx, but often the entire throat is involved.

The study of the etiology of this class of diseases has occupied much attention, and they have been attributed to northeast winds, north winds, west winds and various degrees of temperature; and also bacteriological influences have been supposed to prevail. The writer is led to believe after a careful study of the facts, and after a series of clinical and meteorological observations, that the causes of these catarrhal conditions are cold moist winds, chiefly from the lake, the presence of ozone in the atmosphere and the electrical changes indicated by the cyclonic disturbances nearly always noted in these endemics. He further believes that many forms of these cases may be traced to bacterial origin. The probability is that the climatic etiological agencies induce a susceptibility to infection in the mucous membranes and that thus a nidus is formed for bactiria, which finding here a favorable point from which to work, spread their

poisonous products through the system. These cases usually recover in from three to five days.

The treatment is simple, consisting mainly of gargles, sprays and inhalations. Gargles of glycerine, alcohol and water often act well. Cold or hot sprays of the permanganate or chlorate of potash or of the common astringent preparations are excellent in many cases. Inhalations of alcohol, camphor and menthol act efficiently when the inflammation extends into the larynx, trachea and bronchi. A mixture of ice and cream has the double advantage of alleviating the throat symptoms and yielding nourishment to the patient. Small doses of aconite, quinine and Dover's powder or belladonna are often excellent adjuvants in these cases.

ABSTRACT OF A PAPER ON
"A FATAL CASE OF MASTOIDITIS OF THE
BEZOLD VARIETY,"

By H. KNAPP, M.D.

NEW YORK.

The escape of pus was through a fistula on the medial side of the tip of the right mastoid. This affording only temporary relief, the mastoid was extensively chiseled open and pus was found in the antrum and the cells at the base and along the inner side of the process. The patient felt well for six weeks when cerebral symptoms—intense obstinate headache, nausea, occasional vomiting, dizziness, stupor and impediment of speech—set in and continued until death, three months later. The disease had begun by repeated attacks of coryza with earache and catarrhal otitis media, for which she consulted Dr. K. once before the mastoiditis made its appearance. The patient was pregnant and did not call until after her delivery. After the opening of the mastoid pleuritic exudation appeared, with moderate fever (temp. 102° at the highest) and was completely recovered from in two

weeks. When the cerebral symptoms manifested themselves Dr. K. proposed to open the skull, but the operation was only consented to one day before her death. Six weeks after the appearance of the cerebral symptoms, quite suddenly, a hard, round, painful swelling appeared on the medial side of the upper portion of the sterno-mastoid muscle of the left (unaffected) side. The left ear was healthy. No swelling or discharge from the diseased mastoid. Throughout the whole disease there was no otorrhœa. The drumhead was red, in its upper part bulging. Four weeks before death congestion of both optic discs was noticed which developed into well-marked optic neuritis.

The temperature varied between 99° and 101°, the pulse between 70 and 90, in the last days falling to 60. There were no chills and no localized tenderness on percussion of the skull. The diagnosis was an extradural collection of pus, or cerebral or cerebellar abscess. The relatives had repeatedly been told that without an operation death was sure, with an operation probable. They consented only when they and the patient were exhausted. Dr. K. enlarged the opening in the mastoid, went into the attic of the tympanum. Not finding any puss he penetrated into the brain by chiselling the inner wall of the mastoid process away; no pus, dura mater and lateral sinus healthy. He made another opening into the skull-cavity above the auditory canal: dura mater and superficial layers of brain healthy. He then gave the case up as hopeless. Death in three-quarters of an hour.

Autopsy: At the inner wall of the tip of the mastoid a fistulous opening in the bone. Occlusion of lateral sinus by a dense clot; lepto-meningitis of right temporal lobe and cerebellar hemisphere; abscess in right temp. lobe and another in cerebellar hemisphere; purulent thrombo-phlebitis of the sagittal and left lateral sinuses extending into the external jugular.

The case will be published in full in the July number 1892, of the Archives of Otology.

ABSTRACT OF A PAPER ON
"OPACITIES OF THE MEMBRANA TYMPANI,"

BY DR. DOWLING,

CINCINNATI, O.

In a large number of the ear cases which present themselves for treatment in our every day practice, where there is more or less deafness, you will find a certain per centage with no evidence of ear disease. In a still larger per centage of these cases, the drum-head of one and often of both ears, shows evidence of opacities, either circumscribed or general, with more or less thickening of the membrane.

These opacities when present are usually the result of an antecedent inflammation of the external meatus, or catarrh of the cavity of the tympanum, or senile changes from advanced age.

About two years ago I commenced a series of investigations in the treatment of these opacities of the drum-head with a view to clearing them up, and restoring the membrane to a fair degree of usefulness and getting an improvement in the hearing power.

The treatment consisted mainly of penciling the drum-head, and the adjoining parts of the external meatus, with various medicated solutions.

Altogether something like a dozen different remedies were used, in solutions of water, glycerine, olive-oil and albolene. The applications were made from once a day to twice a week and were continued from one to eight months in each case.

I obtained better results from an oily solution of phosphorus and strychnia, in various strengths, than from any of the other remedies tried.

The remedy I think does good by directly stimulating the membrana tympani, thus increasing its nutritive activity, which in these opacities is usually below par, and thus getting rid of the opacities by absorption of the exuded or deposited material

giving rise to them. I found the influence of the remedy particularly marked in cases of opacities arising from catarrh of the cavity of the tympanum, caused by attacks of la Grippe during the late epidemic of that disease.

In the opacities of elderly people, as a result of senile changes, the remedy sometimes did a great deal of good and then again there was no apparent improvement, even after months of patient treatment. In about ten per cent of these cases I succeeded in improving the hearing by the use of this remedy.

The strength of the solution ought to vary from one grain to five to the ounce according to the degree and standing of the opacities.

The cases should be treated for months, the longer the better, and patients should be told at the start that they need expect very little improvement in their hearing short of at least two months treatment.

* A COMPARISON BETWEEN CERTAIN METHODS
OF TREATMENT IN ACUTE TONSILLITIS AND
PHARYNGITIS, WITH A REPORT OF ONE
HUNDRED AND SIXTY-NINE CASES.

By JAMES E. NEWCOMB, M. D.,

Attending Laryngologist Demilt Dispensary, Assistant Roosevelt
Out-Patient (Throat) Department,
NEW YORK CITY.

Under the title of pharyngitis reference is here made only to the various forms of catarrhal inflammation. Under tonsillitis are included the lacunar and parenchymatous forms of the disease, and as well peri-amygdalar cellulitis or quinsy. No allusion is intended to the pathology, symptoms or possibly infectious character of these diseases. The question is merely one of treatment. The three remedies used have been salol, guaiac and salicylate of soda.

* Abstract of a paper read at the meeting of American Medical Association, Detroit, June 10th, 1892.

Unfortunately the most important factor in therapeutics is the most variable, viz, the individual constitution. This renders it difficult to adopt any standard by which to measure and compare the effects of our remedial measures. In these diseases under consideration the most painful symptom is the difficulty (almost agonizing at times) in swallowing. Even here our comparison is relative rather than absolute, for one man will be overwhelmed with an amount of pain which to his neighbor is a mere annoyance. When our patients are able to swallow again comfortably, the battle is in their opinion already fought, and the victory won. It is therefore with reference to the removal of this symptom that the remedies named have been carefully given and the number of hours noted before relief was obtained.

In these simple throat cases, the doctrine of their self-limitation must not be overlooked. If the curve of "cure" coincides with that of the natural subsidence of the disease, it is an open question as to how much our remedies have done. Most of these acute throat catarrhs run their course in from two to three days. It is therefore evident that we must classify our cases according to the time, in the period of their evolution, at which treatment begins, viz.

1. Cases in which treatment is begun on the first or second day of the disease.
2. Cases in which it is begun on the third day.
3. Cases in which it is begun after the third day.

Salol was employed in 81 cases as follows.

Class 1. 36 cases, average hours before relief 11 +.

Class 2. 15 cases, average hours before relief 14 +.

Class 3. 30 cases, average hours before relief 14 +.

Average of all the salol cases 13+.

Guaiaic was employed in 44 cases.

Class 1. 20 cases, average hours before relief 18 +.

Class 2. 10 cases, average hours before relief 23 +.

Class 3. 14 cases, average hours before relief 11

Average of all the guaiaic cases 17 +.

Sodium salicylate was also employed in 44 cases.

Class 1. 15 cases, average hours before relief 24.

Class 2. 12 cases, average hours before relief 17.

Class 3. 17 cases, average hours before relief 15 +.

Average of all the salicylate cases 18 +.

As will be seen by reference to the figures the preference is in favor of salol. It must be said that in all of the 9 groups of cases, some complete failures are recorded, that is, the painful swallowing did not disappear any earlier than it might have done, had no medicine whatever been given.

It is of interest to note just what is the relation of these one hundred and sixty-nine cases to the rheumatic diathesis as a causative factor in their occurrence. In all but seven this point was definitely ascertained. Of the one hundred and sixty-two remaining cases one hundred and fifty, or seventy two, had neither personal or inherited rheumatic manifestations. Furthermore dividing the cases into rheumatic and non-rheumatic groups, we find that the latter were relieved just about as quickly as the former. Then with these data before us, we cannot accept the doctrine so exclusively urged by many authorities that all these sore throats are essentially rheumatic in their nature

The writer's views as to treatment are summed up as follows :

1. We have in salol a remedy which, in the majority of cases, will relieve more quickly than any other. Occasionally it utterly fails. When it does so, the old combination of iron chloride with potassium chlorate, answers better than any other substitute. This latter combination seems to answer especially in those cases where an acute angina supervenes upon a mucous membrane altered by repeated previous attacks. The dose of salol is five grains in mucilaginous suspension every 2 hours. Capsules are to be avoided. Tablets may be used if the patient can swallow them. In quinsy pus rarely forms before the fourth day. It should be evacuated as soon as formed. Care must be taken to incise where the pus is, not in the tonsil but in the cellular tissue above and in front of (less frequently behind) the tonsil. The pus cavity should be gently syringed with an antiseptic. Treat it as you would an abscess anywhere.

Guaiac is disagreeable to take, the dose is one dram of the ammoniated tincture in hot milk every two hours, gargled and then swallowed. Salicylate of soda (five grains in solution every two hours) is also nauseating to many stomachs.

2. An incision is indicated where we have peri-tonsillar engorgement and free bleeding promoted by a warm water gargle. We ought not to wait for actual pus formation.

3. A mercurial and a saline should invariably precede our remedies, no matter which one used.

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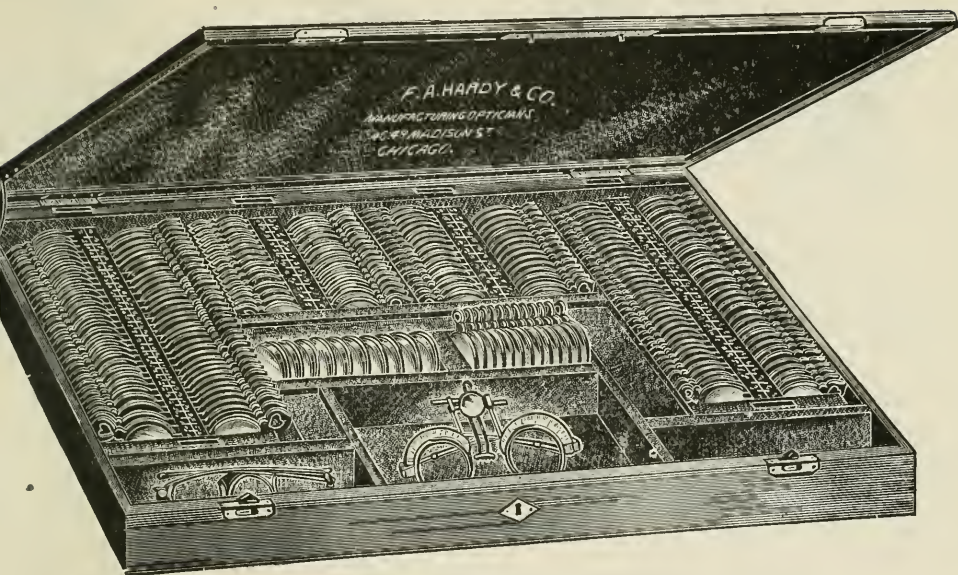
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